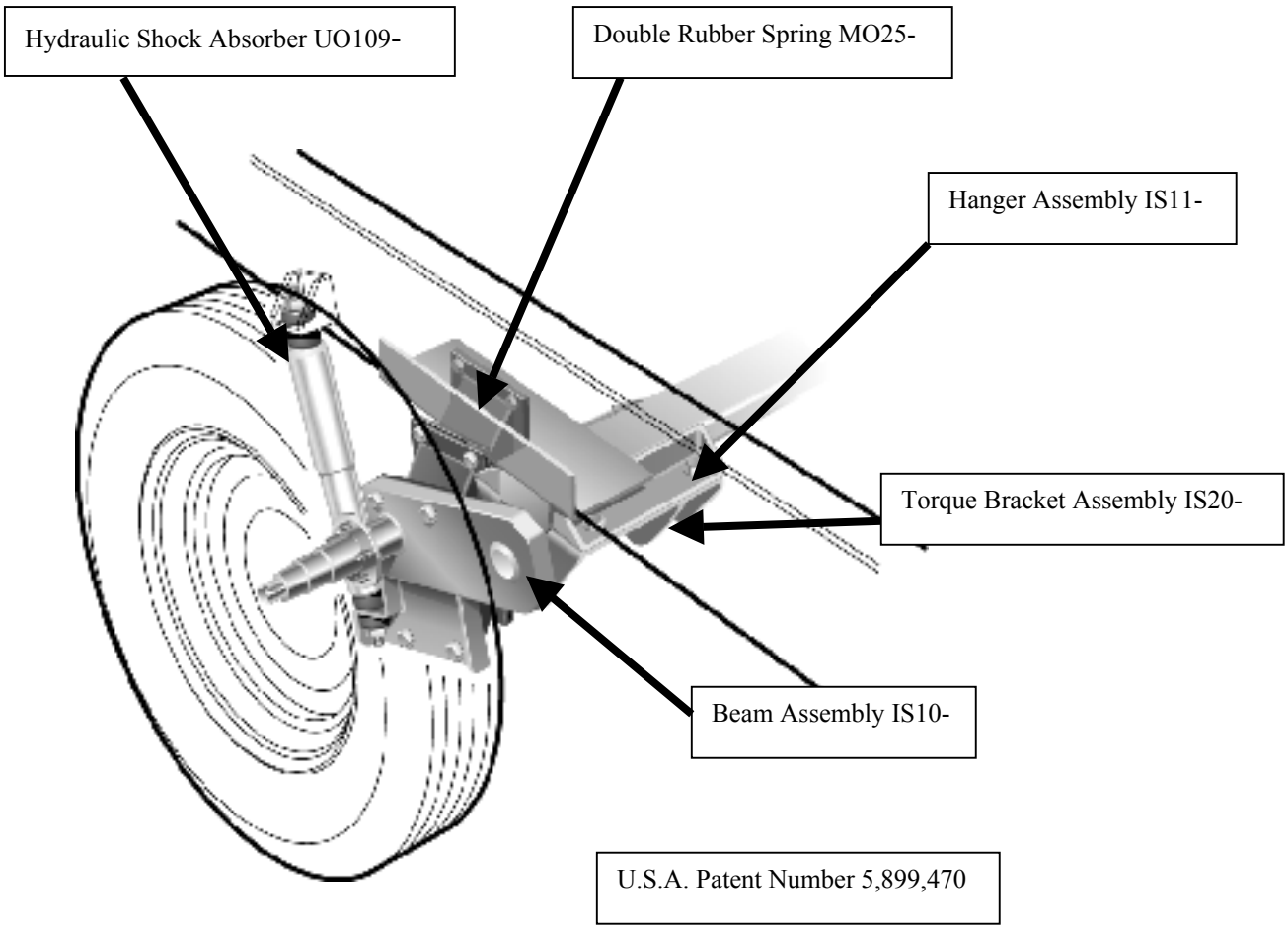
MOR/ryde INDEPENDENT RUBBER Suspension System

"IS" Installation Instructions

MOR/ryde International
1966 Moyer Avenue
Elkhart, IN. 46516
574-293-1581
www.morryde.com



Required Tools

*Floor Jack	*Jack Stands	Welder	Socket & Wrench Set
Hammer	Screw driver	Torch	Disc Grinder
Wire Strippers			

* Check for Adequate Capacity. Must meet or exceed the weight of your vehicle.

Specifications

Torque values must be verified with a torque wrench. A calibrated pneumatic impact wrench is not an acceptable substitute.

Torque Chart Torque Ft. Lbs.

Bolt Size	Grade 5	Grade 8
1/4-20	7	10
5/16-18	14	20
3/8-16	25	35
7/16-14	40	55
1/2-13	60	90
5/8-11	115	170
5/8-18	125	185
3/4-10	190	280

MOR\ryde

"IS" INDEPENDENT SUSPENSION INSTALLATION INSTRUCTIONS
(Reusing Hub, Drum and Brake Assemblies)

Measure the distance from the bottom of the frame to the top of the axle tube. This is the "D" dimension. The MOR\ryde "IS" system will need a minimum of 4".

Mark a spot on the frame, above the center of the axle tube. Do this for both sides of the frame.

Measure the distance between the axles from center of axle tube to center of axle tube.

Measure the distance between the top of the tires and the bottom of the wheel well. You should have at least 4 inches. Check to see if the tire has been rubbing the wheel well. These dimensions will be needed later.

Raise the trailer off the floor until the tires are above the floor. Raise from four corners and be sure to jack on the frame. Use a suitable jack stand or other device to support the trailer and be sure that the jack stand is rated to hold the weight of the trailer.

Remove the tires.

Cut the brake wires next to the splice, if you are reusing the brakes. They will be reattached to the new brake wires.
Remove the brake drums and the brakes from the end of the axle. The preferred tool to remove the drum is a drum puller. It is available at auto parts stores. To remove the drum, use a hammer and a flat screwdriver to tap the dust cap off.
Remove the cotter pin from the end of the spindle. Remove the nut and washer from the end of the spindle. You may need to back off the brakes in order to get the drums off.

Remove the bolts & nuts that hold the brake assembly to the end of the spindle.

The whole assembly should now come off.

You should now have only the spindle remaining on the end of the axle.

Cut off the leaf spring hangers that hold the axle to the frame. Be careful to not damage the trailer frame when doing this. Support the axle with a floor jack or other suitable device so it will not fall.

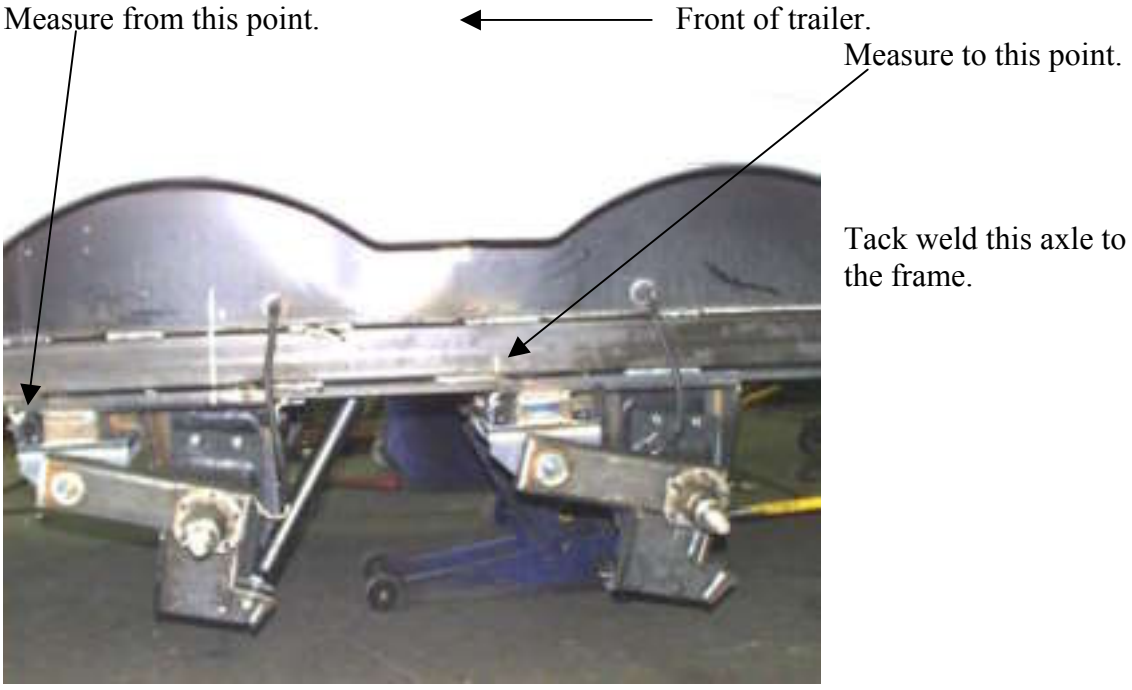
Remove the axles. Grind all of the rough weld that remains.

If the tires were rubbing on the top of the wheel well, (see the top of page 3), or there wasn't at least 4 inches of clearance between the axle and the bottom of the frame, you will need more clearance. Weld the appropriate amount of tubing to the bottom of the frame. For example, if your "D" dimension was 6", you will need to add a 2" tube. If your tires were rubbing in the wheel well you should add enough tubing to the bottom of the frame to provide adequate tire clearance.

Place the MOR/ryde system under the frame and raise it with a floor jack, or other suitable device, up to the frame. Measure 14 inches from the front edge and make a mark. This should be aligned with the axle center mark you made on the frame earlier.

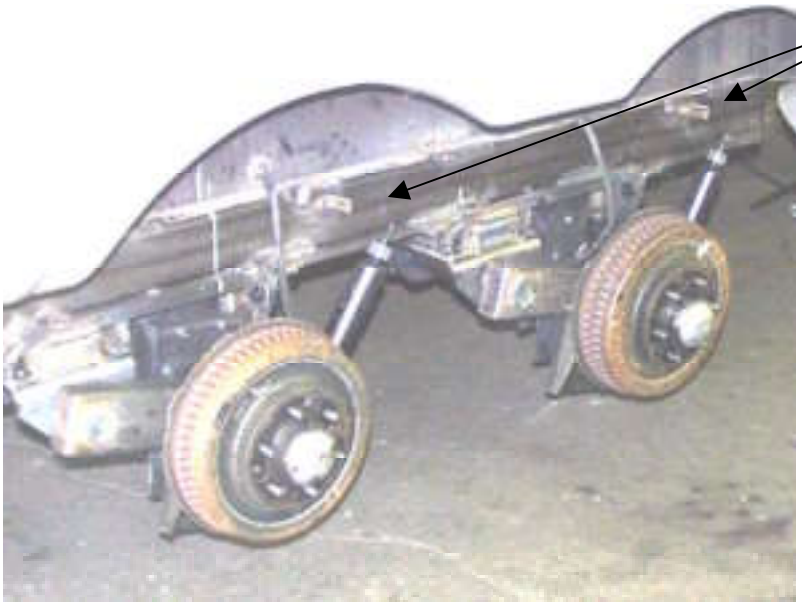
Original axle centerline.
Front of trailer.
Measure from here.
Tack weld the axle to the frame. This will hold it in place while the clips are welded on.

Locate the front of the new axle mounting plate and measure back the distance equal to the original wheelbase, (e.g. 33” or 35”). Draw another line on the frame. Position the front of the second axle at this point.



Bolt on the clips to the front and rear of both axles. Snug up the bolts. Weld the clips to the frame on three sides of the clip. Do not weld the clip in the area where it is bent as this will weaken the bracket.

Using the shock template, weld on the shock clips to the frame. Attach the shocks at this time.



Reattach the brake assembly to the spindle with the bolts that were removed. If the bolts were too rusty to be reused, purchase suitable replacement parts. The brake assemblies have a left and a right hand. The brake wires should come out of the back of the assembly so that they are on the rear side of the spindle. This will ensure that they are properly installed.

Replace the drums, wheel bearings, washers and nuts on the end of the spindles. Do not over tighten the wheel bearings. They should allow the drums to spin freely but not let the drums rock back and forth. Replace the cotter pin and dust cap. If the wheel bearings need grease please apply before reassembling them. Re-wire the brakes at this time.

Bolt on the tires and wheel alignment equipment at this time. Wheel alignment is done at MOR/ryde with a Hunter Laser Alignment model R611. It can be done with a comparable machine. The Toe should be approx. +/- .010” to +.060”. the camber should be approx. +.5 deg. to + 1 deg. After wheel alignment set the trailer back down on the floor.

Independent Suspension System (IS) Alignment Guide

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SECTION I

DESCRIPTION

The MOR/ryde "IS" Independent Rubber Suspension System uses 100% Natural Rubber Springs to support the trailer weight and absorb road shock. By absorbing the shock, the rubber provides a much smoother towing experience than steel leaf springs. With the new MOR/ryde "IS" Independent Rubber Suspension System, there are no more broken leaf springs! The towing is virtually hassle-free with the smoothest towing available for fifth wheels and travel trailers.

The Primary benefits that you can expect from the MOR/ryde "IS" suspension are:

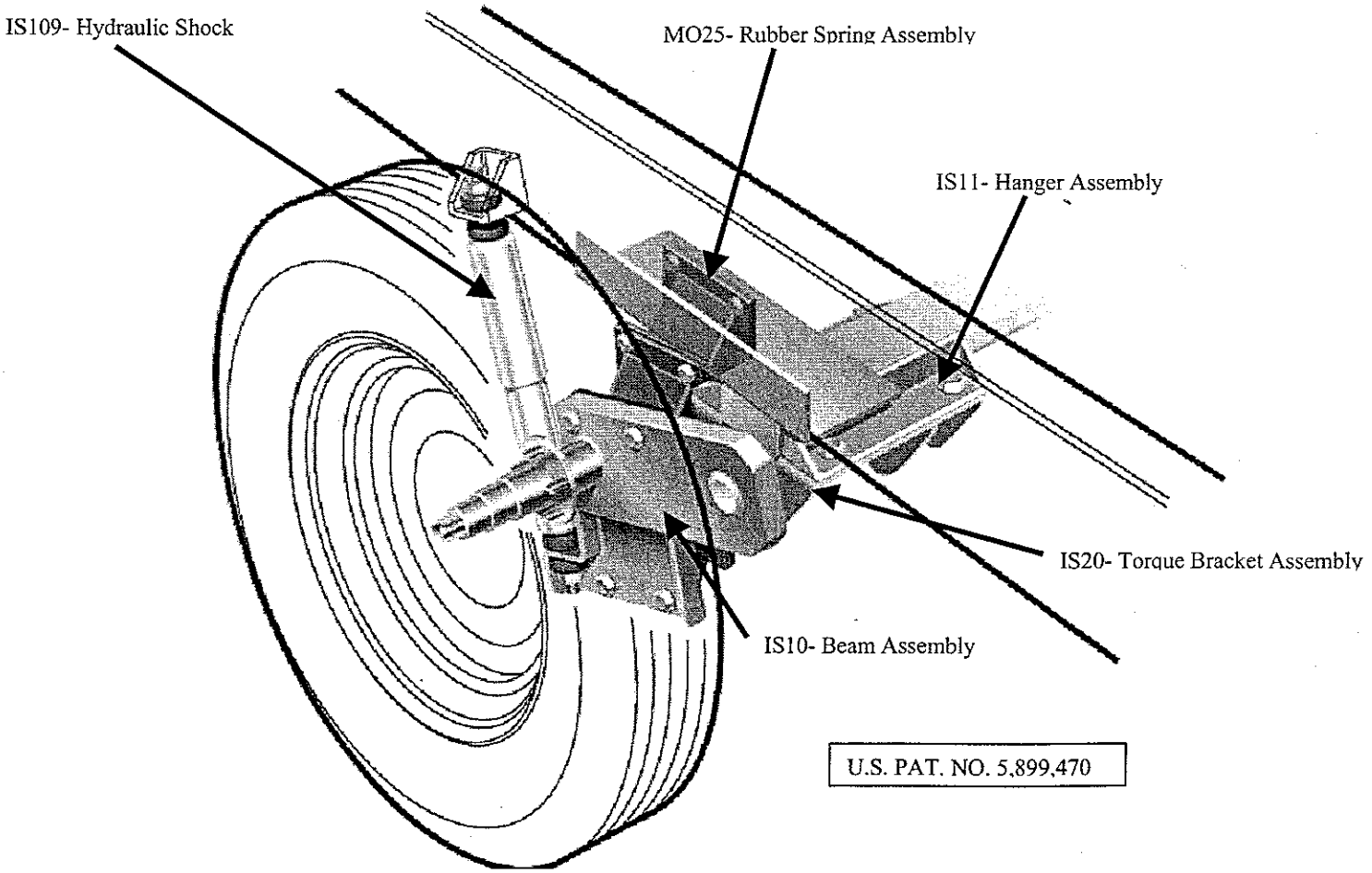
SMOOTHER TOWING - the MOR/ryde suspension has up to 2 1/2 times the suspension travel of leaf springs or rubber axles, allowing the MOR/ryde suspension to absorb road shock much better.

IMPROVED TOWABILITY - the MOR/ryde suspension is designed to "block" body roll, improving the cornering and stability of the tow vehicle and trailer combination.

AUTOMOTIVE STYLE ALIGNMENT - a MOR/ryde first! You can manage your tire wear through toe and camber adjustments, a feature no other towable suspension offers!

HEIGHT ADJUSTABILITY - the MOR/ryde suspension can be adjusted easily to accommodate different tow heights and to compensate for side-to-side load variations.

PROVEN DURABILITY - the MOR/ryde suspension has undergone strenuous testing to prove it's durability. The result? No more broken leaf springs!



U.S. PAT. NO. 5,899,470

Independent Suspension (IS) Alignment Procedures

The design of the MOR/ryde independent suspension system allows for automotive style toe and camber wheel alignment. This allows the operator of the RV to effectively manage tire wear under normal towing conditions. There are four bolts and one torque bracket per wheel that allow for these adjustments. Refer to the directions below to proper toe and camber procedures.

NOTE: Always adjust the camber first followed by the toe.

Alignment Specifications

Camber (+0.5 degrees to +0.8 degrees)

Toe (+0.01 inches to +0.06 inches)

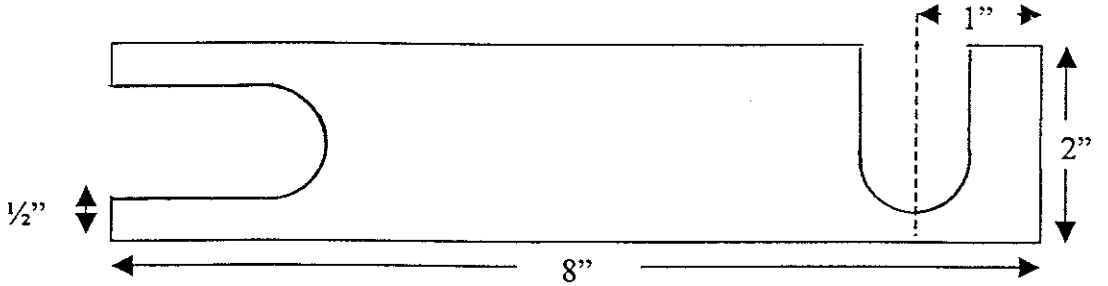
Adjusting the Camber

1) Connect the alignment machine and level the unit on the alignment turntables.
2) Loosen the four torque bracket bolts.
3) If the camber is negative, add a shim(s) to the outside of the torque bracket.
4) If the camber is positive, add a shim(s) to the inside of the torque bracket.
5) A ¼" shim will change the camber approximately 1 degree.
6) Tighten torque bracket bolts.

Note: The unit will need to be raised to add camber.

Camber shim specifications

Shims are available in three sizes ¼", 1/8", and 1/16".



Adjusting the Toe

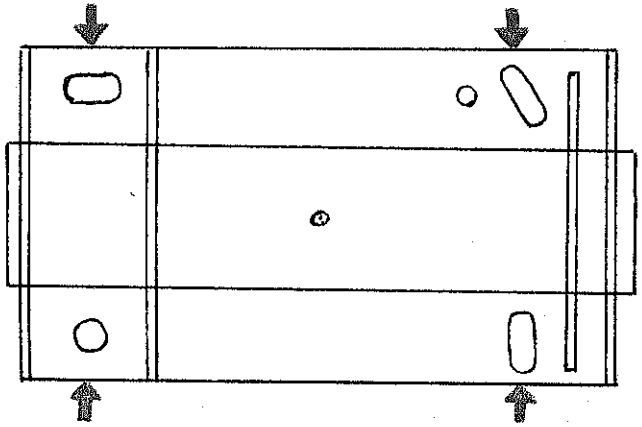
1) Connect the alignment machine and the level the unit on the alignment turntables.
2) Loosen the four torque bracket bolts.
3) Adjust the torque bracket assembly to obtain the correct toe readings on the alignment machine.
4) Tighten the torque bracket bolts.

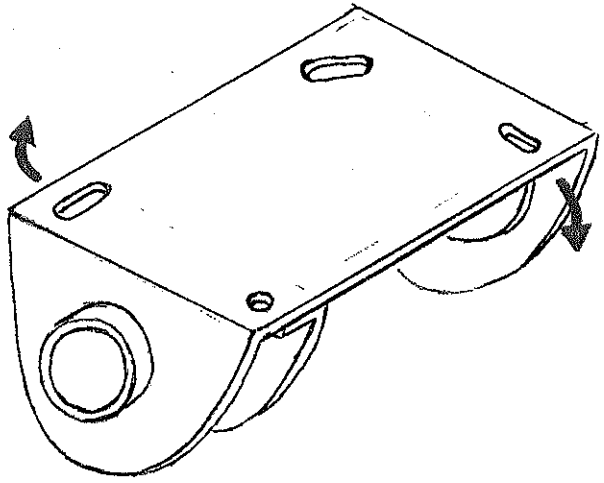
Note: Toe adjustments can be eased by the use of a "port-a-power" or large adjustment bar.

IS Torque Bracket Alignment

Toe

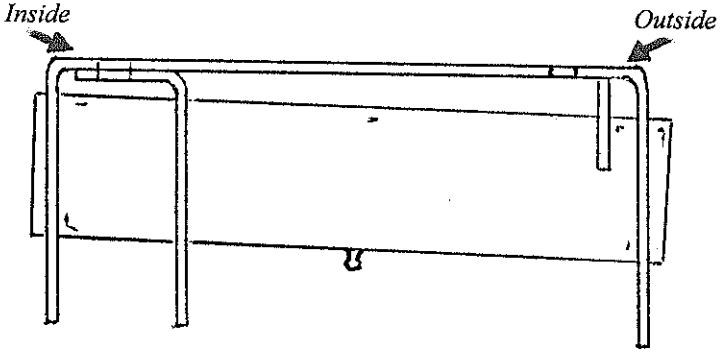
1) Loosen highlighted bolt and nut assembly.
2) Adjust torque bracket side to side to achieve proper toe alignment.
3) Tighten ½" bolts to 60 foot lbs.
   Tighten ¾" bolts to 180 foot lbs.

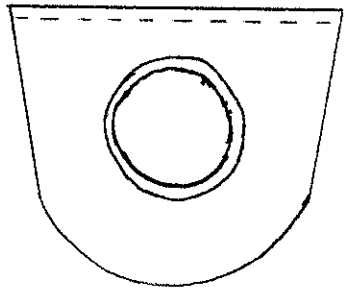




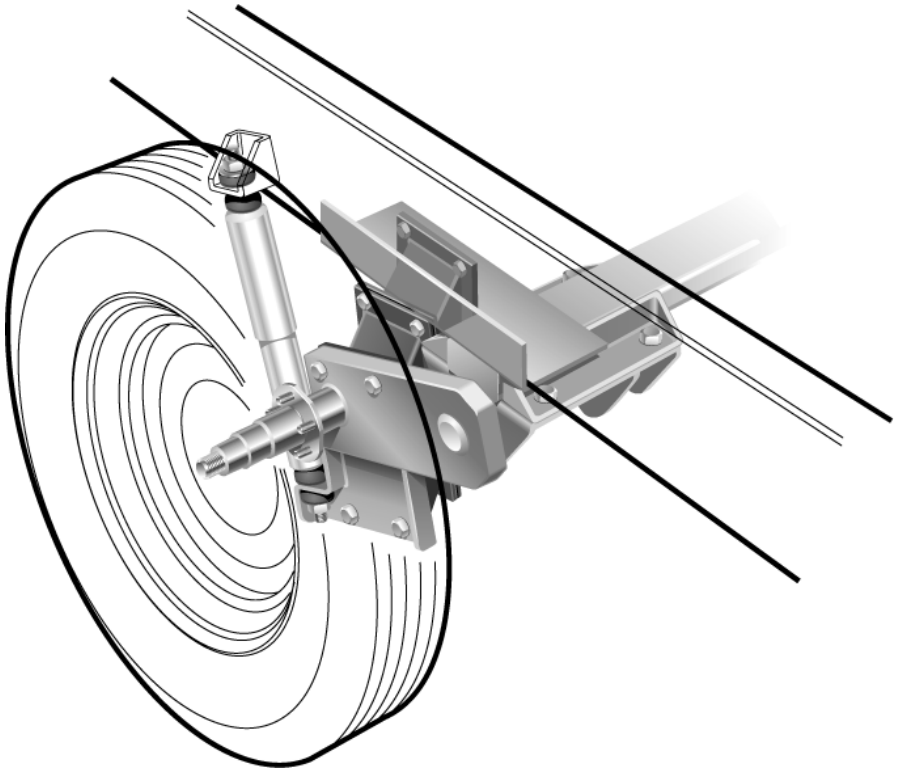
Camber

1) Loosen highlighted bolt and nut assembly.
2) Add shims to the inside or outside of the torque bracket to until proper camber is achieved.
3) Tighten ½" bolts to 60 foot lbs.
   Tighten ¾" bolts to 180 foot lbs.





“IS”
INDEPENDENT SUSPENSION SYSTEM OWNERS MANUAL



* Made in U.S.A. Patent number 5899470

Description

Congratulations on your purchase of the MOR/ryde "IS" suspension system*. The MOR/ryde "IS" system has replaced your steel leaf springs and axle. With our "IS" independent design, we use rubber shear springs to isolate and absorb road shock and increase the dynamic wheel travel.

This provides you with:

- Much smoother towing
- Improved handling and towing
- Reduced vibration
- Better protection of the trailer from damaging road shock
- Height Adjustment

The MOR/ryde "IS" also features automotive style alignment features. This allows for toe and camber wheel alignment. Each "IS" system is designed specifically for the chassis of the trailer it is installed on. The "IS" system is available with a wide range of brake and bearing options.

Bearing Options:

- Standard 2 piece bearing units with inner & outer bearings
- E-Z lube bearings
- Never lube bearings by Dexter

Dexter Axle electric brake options:

- 12" X 2" rated at 7000 lb
- 12.25 x 2.5" rated at 7200 lb
- 12.25" x 3.38" rated at 8000 lb

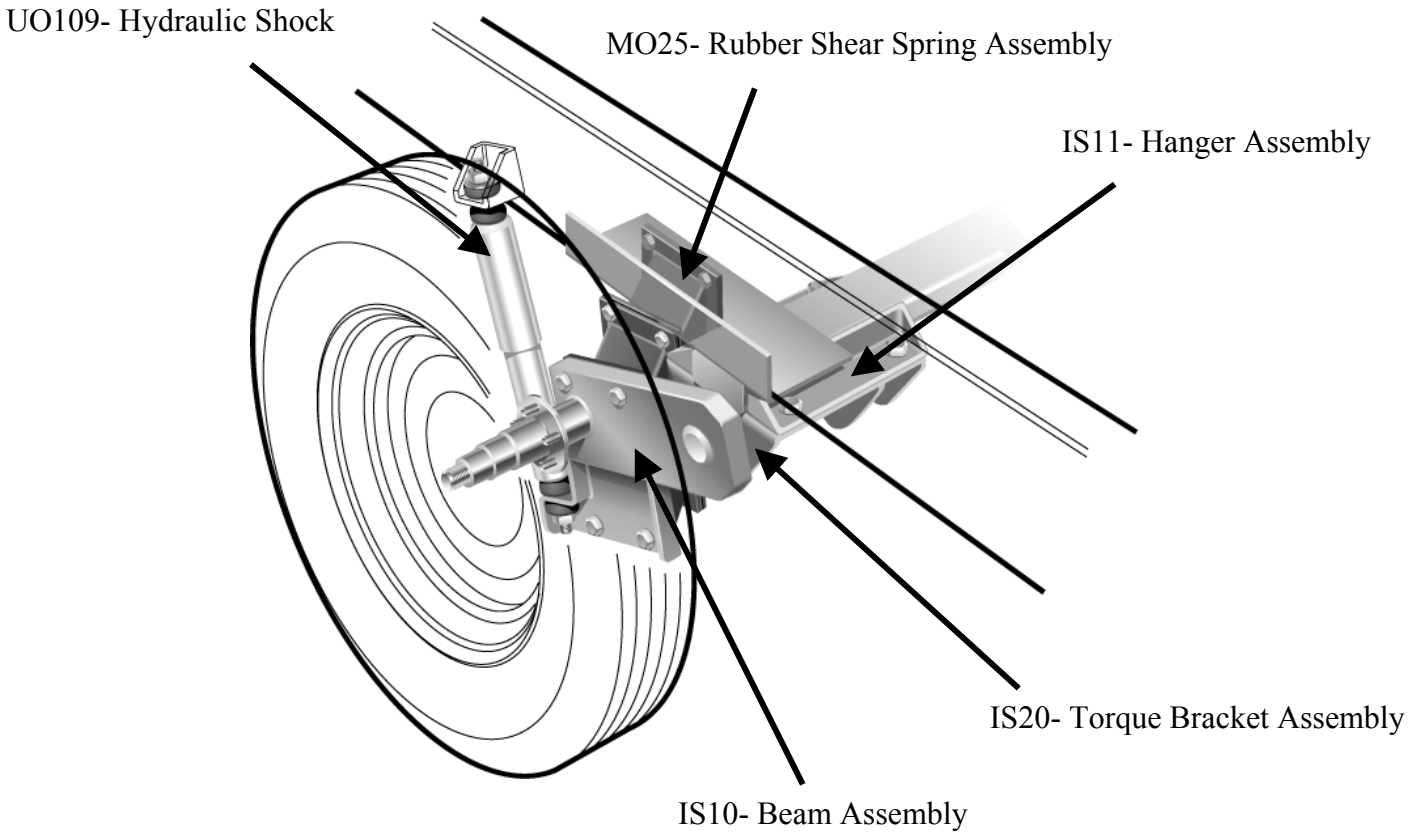
Kodiak Hydraulic Disc Brake options:

- 7000 lb
- 8000 lb

For more information about the braking systems or bearing options on your trailer, please consult the owners manual provided by the brake/axle manufacturer.

MOR/ryde "IS" Parts Listing

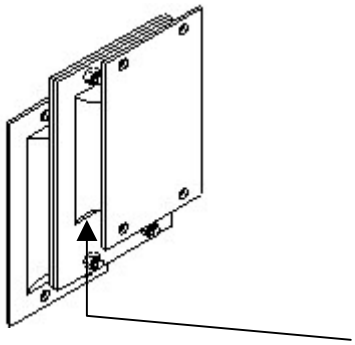
For ordering information please call (574) 293-1581 and ask for the parts department. The following diagram shows a breakdown of the parts in the "IS" suspension system. MOR/ryde also has replacement parts available for brakes, bearings, and hub and drum assemblies.



TROUBLE SHOOTING / MAINTENANCE CHECKS

Rubber Shear Spring Inspection

The rubber springs (Fig.1) should be periodically inspected for any tears or cracks. If a rubber spring has a 3" long and ¾" deep crack or tear, the rubber should be replaced. Using a flat tool such as a putty knife can check this. The putty knife can be used to probe the rubber. If the knife can be inserted into the rubber to a depth of ¾" or more and at a width of 3" or more the rubber should be replaced. *Note: It is normal to see rubber spring weather checking, which are small surface cracks in the rubber. Weather checking does not require a rubber spring to be replaced.*



This is the rubber area that should be inspected.

Fig. 1

Height Adjustments

The MOR/ryde "IS" suspension system provides trailer height adjustment. There are extra sets of holes in the hanger assembly that can be used to adjust the height of the trailer. The trailer can also be adjusted from side to side to compensate for uneven loads. The adjustment holes are where the rubber springs bolt to the frame. Installing the rubber springs into the lower set of holes will raise the trailer 1".

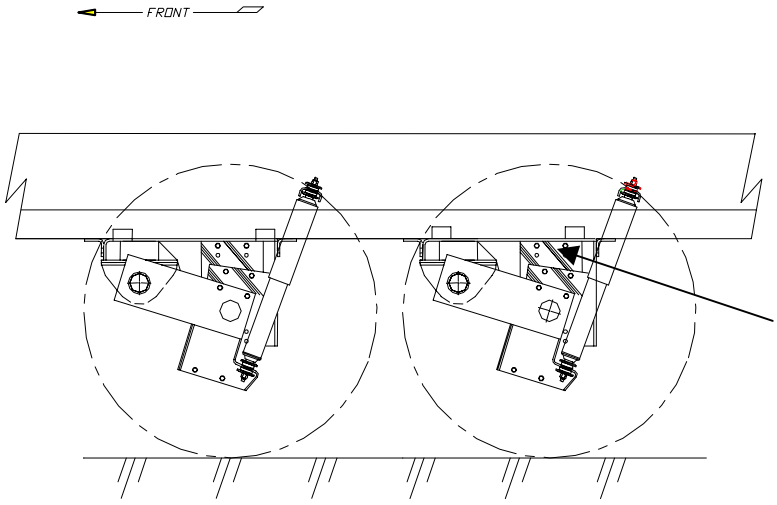


Fig. 2

Measuring Rubber Spring Deflection

Park the vehicle on level ground. Measure dimension A, ground to bottom edge of the rubber spring at the hanger (fig. 3). Measure dimension B, ground to the bottom edge of the rubber spring at the spring carrier. Use the following formula to determine inches of rubber spring deflection:

Step 1: Dim. A – Dim. B = C
Step 2: Rubber Spring Deflection = 5-C

Nominal rubber spring deflection is 2-3 inches.

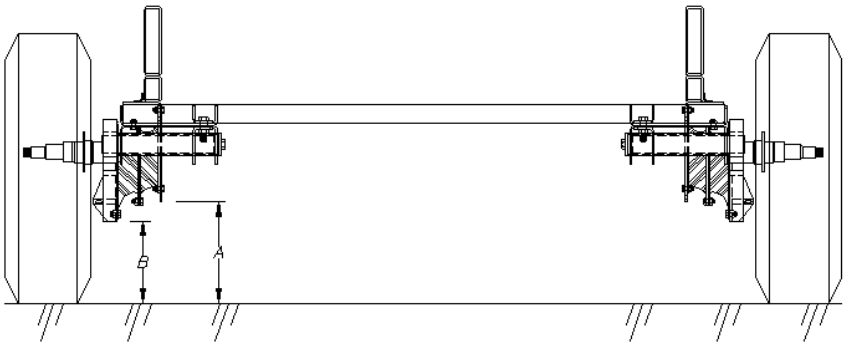


Fig. 3 (End View)

Alignment

Wheel alignment should be done with equipment that is designed for multiple axle trailers. The MOR/ryde "IS" system is adjustable for both toe & camber. Any alignment shop capable of aligning full size trailers should be able to handle the job. The equipment used by MOR/ryde is a Hunter Laser Alignment model R611. Camber should be approx. +1/2 deg. to +1 deg. Toe should be approx.+/- .010" to +.060".

Lubrication

After November of 2001, the pivoting shaft will have a grease zerk on the under side of the torque bracket. It should be greased every 12 months or 6000 miles. For wheel bearing lubrication recommendations refer to the Axle service manual.

Shock Absorbers

Monroe hydraulic shocks are standard equipment on all MOR/ryde "IS" style suspension systems. The shocks should be periodically inspected for oil leaks. If they are leaking or are broken, they should be replaced.

Basic Trouble Shooting

Problem / symptom	Cause	Correction
Excessive tire wear	Tires not aligned.	Have tires re-aligned
	Worn torque bracket bearings.	Have the bearings replaced.
	Shock absorbers are worn.	Replace shock absorbers.
	Improper tire pressure.	Adjust air pressure.
Rough ride	Improper rubber spring deflection.	Call MOR/ryde service department to select a different rubber spring.
	Worn shock absorbers.	Replace shock absorbers.
	Tires rubbing on wheel well or suspension system is bottoming out.	Distance from the bottom of wheel well to top of tire is not adequate. If spring rubber spring deflection is correct, and height adjustment is not sufficient a spacer tube needs to be welded between the frame and the "IS" system.
Excessive sway	Improper tire pressure.	Adjust air pressure.
	Torn rubber spring.	Replace rubber spring.
	Improper hitch weight.	Travel Trailers should have 10%-12% hitch weight. 5th wheel trailers should have 20%-25% hitch weight.

MOR/ryde Rubber Suspension System

LIMITED WARRANTY
INDEPENDENT SUSPENSION

Summary of Warranty

We, MOR/ryde, Inc., 1966 Moyer Avenue, P.O. Box 579, Elkhart, Indiana 46516 ("MOR/ryde"), warrant to you, the original first purchaser of new MOR/ryde rubber suspension system ("Product"), for a period of five (5) years from the date of original first purchase, or use or operation for a distance of fifty thousand (50,000) miles, whichever occurs first ("Warranty Period"), that the Product is free of defects in material or workmanship under normal use and service and will meet or exceed all of our advertised written specifications, excepting items and uses excluded from this Warranty. Labor charges are covered for 12 months from the original date of purchase.

Examples of Items and Uses Excluded from Warranty

We are not responsible for, and this Warranty does not apply to, (a) any part of the Product that is defective or damaged due to abuse; misuse; neglect; accident; unauthorized replacement, repair, parts, or modification; (b) Products with no proof of mileage, or date of purchase; (c) duplication of repair due to faulty diagnosis or workmanship of others; (d) incorrect installation of any part of the Product, including but not limited to, incorrect torque on bolts; (e) loading the Product or any part of it beyond our rated load capacity; (f) towing expenses, freight charges, transportation expenses, telephone, telegraph or other communication expense, overtime or holiday labor, downtime or owner's layover expenses such as meals and lodging; (g) re-springing suspension for ride adjustment; (h) failure of another component which results in our Product's failure; (i) YOU ARE NOT ENTITLED TO RECOVER FROM US ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN OUR PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. EXCEPT AS OTHERWISE SPECIFICALLY DESCRIBED IN THIS WARRANTY, WE MAKE NO OTHER WARRANTY, EXPRESS OR IMPLIED, IN CONNECTION WITH OUR PRODUCT, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

What we will Do

We will remedy any defect in materials or workmanship by authorized repair or replacement. Warranty work can only be performed at our factory or authorized service centers. We will remedy the defect within a reasonable time after receipt of the defective Product at the factory or authorized service center. All our expenses in remedying the defect will be borne by us, including labor and material.

How to Obtain Warranty Service

You must notify us of your need for warranty service not later than thirty (30) days after expiration of the Warranty Period. We will notify you of the nearest authorized service center to which you should deliver the Product. Corrective action will be taken within a reasonable time of the date of receipt of the defective Product by us at the factory, or at one of our authorized service centers. For further information about our factory or authorized service centers, write or call at the address or telephone number listed below.

Alteration of this Warranty

NO PERSON HAS THE AUTHORITY TO ENLARGE, AMEND OR MODIFY THIS WARRANTY. THE WARRANTY IS NOT EXTENDED BY THE LENGTH OF TIME WHICH YOU ARE DEPRIVED OF THE USE OF THE PRODUCT. REPAIRS AND REPLACMENT PARTS PROVIDED UNDER THE TERMS OF THIS WARRANTY SHALL CARRY ONLY THE UNEXPIRED PORTION OF THIS WARRANTY.

Other Legal Rights

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. No action to enforce this Warranty shall be commenced later than ninety (90) days after expiration of the Warranty Period.

Changes in Our Products

We reserve the right to change the design of any part of the Product, make additions or improvements to it from time to time, without notice and with no obligation to make corresponding changes or improvements to Products previously manufactured.

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MOR/ryde INDEPENDENT RUBBER Suspension System

"IS" Service Manual

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IS153-003 REV.

"IS" INDEPENDENT RUBBER SUSPENSION SYSTEM

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SECTION I

DESCRIPTION

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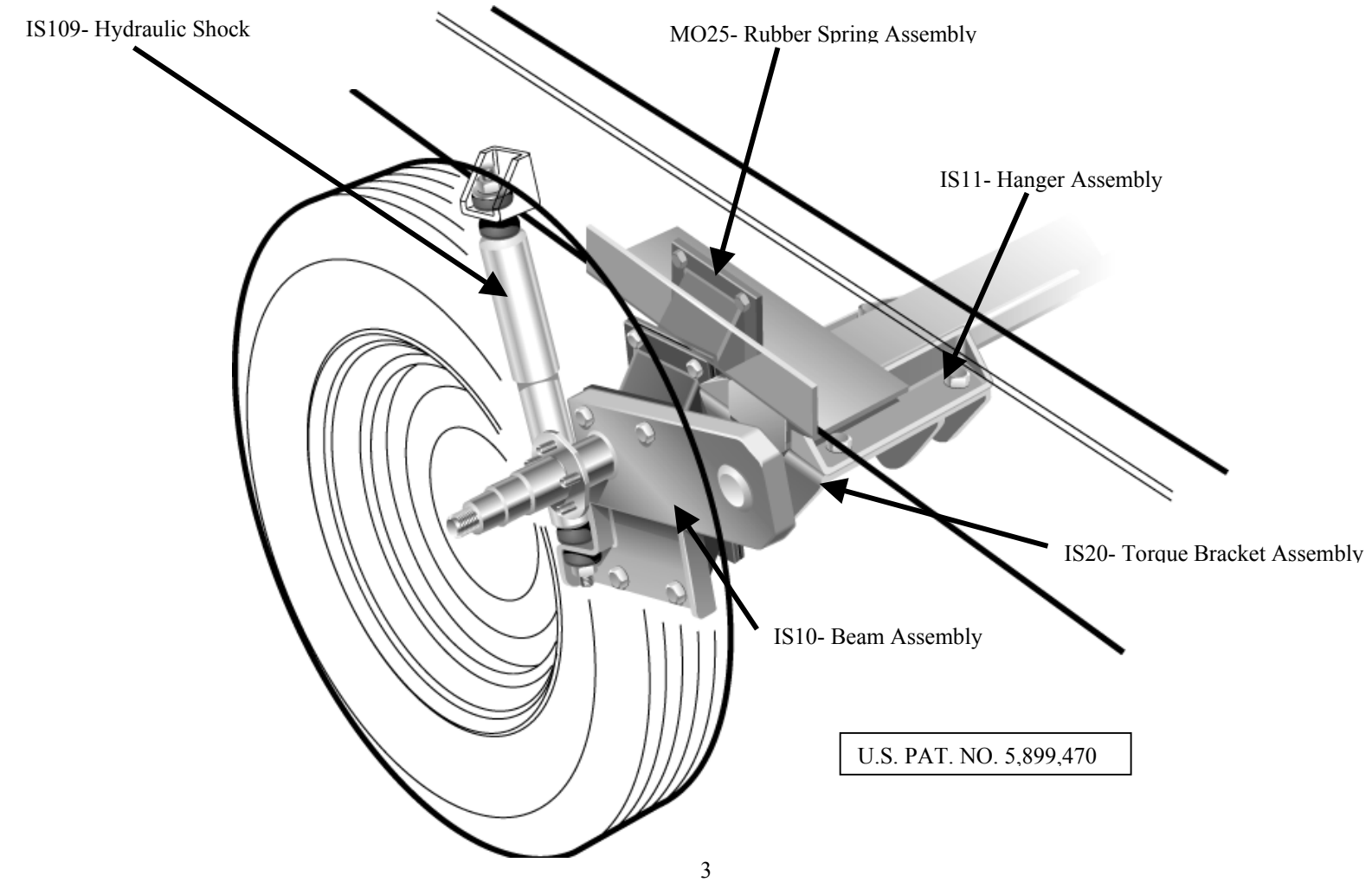


U.S. PAT. NO. 5,899,470

SECTION II

MAINTENANCE

Maintenance to the MOR/ryde "IS" suspension system is minimal. For service information regarding bearing options or braking systems on your trailer, please consult the appropriate brake/axle manufacturer.

II-A LUBRICATION

After November of 2001, the "IS" journal shaft will have a grease zerk on the under side of the "IS" torque bracket. It should be greased every 12 months or 6000 miles.

II-B SHOCK ABSORBER MAINTENACE

The shock absorbers used on the MOR/ryde "IS" rubber suspension are sealed, hydraulic type and require no periodic maintenance. Shock absorbers of this type should be checked every 10,000 miles to make sure they are functioning satisfactorily, bushings are not worn, and the dust cover has not been damaged by flying stones or debris from the road. If a shock absorber is leaking, fails to operate, or develops an unusual noise, the shock absorber should be replaced. See section III-C for replacement procedure.

SECTION III

SERVICE

NOTE:
ALL SERVICE PROCEDURES MUST BE PERFORMED WITH THE VEHICLE SUPPORTED AT THE FRAME WITH APPROPRIATELY RATED SAFETY STANDS AND JACKS.

III-A PROCEDURES FOR JACKING UP UNIT

It is permissible to jack up a unit equipped with a MOR/ryde Independent Rubber Suspension System only on the Beam Assembly under the Rubber Springs or the frame of the trailer. The most efficient location to raise a trailer is at the frame. Jacks and safety stands should be positioned towards the front and rear portion of the trailer frame. To perform suspension work tires should be approximately 4" above the ground.

III-B INSPECTION/REPLACEMENT OF RUBBER SPRINGS

MOR/ryde rubber springs are made of a special formulation of natural rubber. The rubber springs are vulcanized (bonded) to steel plates. There are two unlikely problems that may occur with MOR/ryde rubber springs:

1. The first type is bond failure. This condition is apparent when the rubber separates from the metal plate.
2. The second type is a rubber failure. This condition is apparent when the rubber tears or delaminates and generally occurs in the middle of the rubber spring between the metal plates.

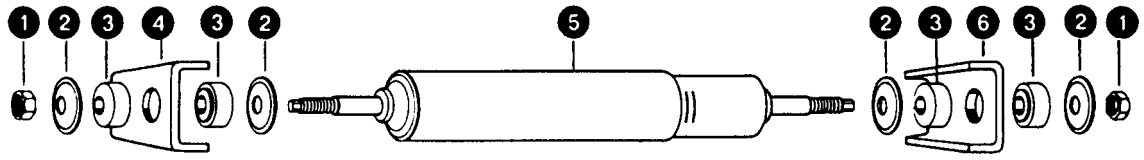
Either of the conditions described above would not always necessitate replacement of the rubber spring. If there is a question about the integrity of a marginal rubber spring, a 3" wide object (such as a 3" putty knife) can be used to probe the rubber spring in the affected area. (If the probe penetrates the crack or separation .75" or more, the spring should be replaced). Rubber Springs should be inspected when supporting the trailer.

To Replace a Rubber Spring Assembly:

1. Raise the unit until the tires are approximately 4" off the ground, the frame is supported with safety stands and the suspension is hanging unsupported.
2. Remove both tires on the side of the unit the Rubber Springs are to be replaced.
3. Loosen or cut loose brake wires to obtain slack.
4. Remove 3/8" bolts securing Rubber Springs to Hanger Assembly and Beam Assembly.
5. Pry rubber springs out from between the Beam Assembly and the Hanger Assembly.
6. Align and bolt the rubber spring assembly to the Hanger Assembly. Drift pins can be used to align the bolt holes on the Beam Assembly with the Rubber Spring bolt holes (a bottle or floor jack may be needed to raise the Beam Assembly and the bolt holes of the Rubber Spring).
6. Reinstall the shocks.
7. Use heat-shrink connectors to reconnect brake wires. Use tie straps to secure brake wires out of harms way of Beam Assembly, Rubber Springs and Shock Absorbers.
8. Reinstall tires, torque all bolts and remove jack stands.

III-C REPLACEMENT OF SHOCK ABSORBER

There are two (2) shock absorbers utilized on the MOR/ryde Independent Rubber Suspension System, per axle. These shock absorbers are made by Monroe. They have special valving and stroke length specifically designed for the MOR/ryde suspension. They are rarely available through Monroe after market dealers. Consult MOR/ryde direct for replacements. Refer to figure the below.



1. Fastener Nut
2. Washer
3. Rubber Bushing
4. Clip welded to trailer frame
5. Shock Absorber
6. Clip welded to Beam Assembly

To replace a shock absorber:

1. Remove fasteners.
2. Remove shock absorber.
3. Install new bushings on new shock absorber per exploded illustration above.
4. Install new shock absorber.
5. Torque fasteners per Torque Chart in Specification section.

III-D REPLACEMENT OF BEAM ASSEMBLY

The Beam Assembly attaches the wheel and rubber suspension to the Hanger Assembly, which is welded to the frame of the coach. Should a beam and or spindle become damaged and need to be replaced follow the steps below.

1. Jack up the unit. (see section III-A)
2. Remove the tires.
3. Remove the wheel drum and backing plate, which contains the brakes.
4. Remove the springs from the Beam Assembly.
5. Remove the shock at the lower end.
6. Remove the nuts and washer at the end of the journal bar of the Beam Assembly (toward the inside of frame).
7. Pull out the Beam Assembly.
8. Slide in the new Beam Assembly. Be careful not to damage the bearings. Bearings should be replaced if damaged or worn.
9. Reinstall the nuts in the journal bar, then the shock, spring, and backing plate and wheel drum. Appropriately torque all nuts and bolts.
10. Reinstall the tires and wheels.

III-E SUSPENSION ALIGNMENT.

The MOR/ryde independent suspension system allows for automotive style toe and camber wheel alignment. This allows you to manage your RV's tire wear as effectively as you manage your tow vehicle. There are four bolts per wheel, which allow for these adjustments. Always adjust the CAMBER first, followed by the TOE.

ADJUSTING THE CAMBER

1. Connect the alignment machine and level the unit on the alignment turntables.
2. If camber is negative, add a shim to the outside of the Torque Bracket.
3. If camber is positive, add a shim to the inside of the Torque Bracket.
4. Shims are available in three sizes; .25", .125" and .0625".
5. A ¼" shim will change the camber approximately 1 degree.
6. To decrease camber, loosen the four Torque Bracket bolts and remove the ¾" bolts one at a time to install shims.
7. Unit will need to be raised to add camber.
8. Appropriately torque all bolts.

ADJUSTING THE TOE

1. Connect the alignment machine and level the unit on the alignment turn tables.
2. Loosen the four bolts holding the Torque Bracket to the Hanger Assembly.
3. Move the Torque Bracket Assembly to obtain the correct toe readings on the alignment machine.
4. Tighten the Torque Bracket bolts.
5. Raising the coach is not required to adjust the toe.
6. Toe adjustment can be accomplished with a "port-a-power" or large alignment bar.
7. Appropriately torque all bolts.

SECTION IV

TROUBLE SHOOTING

The following list covers the most frequent cause for concern, which may arise with the MOR/ryde Independent Suspension System. If a problem occurs that is not addressed here, please contact MOR/ryde International direct for further service information at 574-293-1581.

Problem / symptom	Cause	Correction
Excessive tire wear	Tires not aligned.	Have tires re-aligned
	Worn torque bracket bearings.	Have the bearings replaced.
	Shock absorbers are worn.	Replace shock absorbers.
	Improper tire pressure.	Adjust air pressure.
Rough ride	Improper rubber spring deflection.	Call MOR/ryde service department to select a different rubber spring.
	Worn shock absorbers.	Replace shock absorbers.
	Tires rubbing on wheel well or suspension system is bottoming out.	Distance from the bottom of wheel well to top of tire is not adequate. If spring rubber spring deflection is correct and height adjustment is not sufficient, a spacer tube needs to be welded between the frame and the "IS" system.
Excessive sway	Improper tire pressure.	Adjust air pressure.
	Torn rubber spring.	Replace rubber spring.
	Improper hitch weight.	Travel Trailers should have 10%-12% hitch weight. 5th wheel trailers should have 20%-25% hitch weight.

SECTION V

AXLE BRAKE INFORMATION

The MOR/ryde independent Rubber Suspension System can utilize several different sizes of brakes. Systems that are factory installed may have different brake components than those systems that are installed after market. In an after market installation, it is possible to upgrade braking systems to use a larger brake such as a 12 ¼" x 2 ½" or a 12 ¼" x 3-3/8" brakes or to disc brakes. If after market customers are not upgrading their braking system at the time of installation, the existing braking system on the trailer or fifth wheel will be used.

For more brake information, consult your owner's manual of your trailer or contact MOR/ryde for a more detailed discussion on brake options.

SECTION VI

Specifications

Torque values must be verified with a torque wrench. A calibrated pneumatic impact wrench is not acceptable substitute.

Torque Chart Torque Ft. Lbs.

Bolt Size	Grade 5	Grade 8
1/4-20	7	10
5/16-18	14	20
3/8-16	25	35
7/16-14	40	55
1/2-13	60	90
5/8-11	115	170
5/8-18	125	185
3/4-10	190	280